



Operating manual



AIRBOX

Item No. 55.300



Do not use this device unless you have
read the user manual and understand it.

Original version of the German operating manual
55300-08-00



Warnings and safety instructions



Electrical current hazard



Note



Reference to ESTA customer service



Reference to legal regulations

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1. General safety notes

Before operation, all persons who are to use the device or perform maintenance on it must be provided with information, instructions and training in using the device and on the substances for which it is to be used, including the procedure for safe disposal of the collected material. Responsibilities must be clearly established for the following:

- **Installation**
- **Start-up**
- **Operation**
- **Maintenance and repair**



The device must be used only by persons who have been instructed in its handling and are explicitly authorized to use it.

Always keep the operating manual at the place where the device is being used, so that it can be seen by personnel at all times.



The device must be used only to exhaust welding fumes. No liquids, aggressive gases, easily flammable materials or glowing particles (such as hot embers) may be aspirated.

Use of the device when welding oil-covered metals is prohibited. **Fire hazard!**

The device must not be used or stored outdoors or under wet conditions.

Only original ESTA replacement parts must be used; use of other products will void the warranty.

During exhaust, the volume flow returned from the device into the room must be no more than 50% of incoming air. With free room ventilation, the incoming airflow must equal the room volume every hour. This means that the rate of air replacement must be once per hour.

$$\text{Incoming air flow [m}^3\text{/h]} = \text{room volume [m}^3\text{]} * \text{air replacement rate [1/h]}$$

Example:

When the device is operating at the nominal airflow volume of 1,100 m³/h, the same volume of fresh air must be fed in. This occurs with natural ventilation if the volume of the work room is 1,100 m³ (e.g., 458 m² surface with a 2.4 m ceiling height).



The exhaust arm's detection device must be tracked in consideration of the suction range of about 200 mm and of exploitation of the welding site's welding fume movement.

Make sure that the power cable does not become damaged by being run over, compressed, pulled, etc.

The power cable must be examined regularly for signs of damage or ageing.

The device must not be used if damage to the power cable is determined.



The power cable and plug must be replaced only by an appropriately trained electrical specialist.



For the power supply and the device's power cords, only original ESTA replacement parts must be used. This guarantees that they are spray-proof according to applicable standards and have the necessary mechanical strength.

The power cord must be plugged in only after the welding fume filter has been successfully set up at its place of use.

After use, before moving the device to another site and before cleaning, maintenance, or replacement or removal of movable parts, the device must be unplugged.



From its first use, the device contains toxic dust. Maintenance processes and filter replacement must be performed by expert personnel who are wearing appropriate protective gear. The device must not be operated without the complete filtration system!



According to work equipment user directives 89/655/EEG and TRGS 560, safety devices for prevention or removal of hazards must be regularly maintained and regularly inspected by an expert for safe, flawless operation.



In all emergencies, the device must be disconnected from the power supply immediately. Turn the device off with the main switch and pull the plug. If there is a fire, the fire department is to be alerted immediately, and the fire must be contained by appropriate means.



When installing the exhaust arm, absolutely all installation conditions must be adhered to.

Follow all laws, guidelines and standards applicable to the application or planned purpose.

ESTA exhaust arms are for complete, flexible capture of smoke and dust. Precise suction at the dust or smoke source is the ideal prerequisite for a powerful exhaust system.

According to EU guideline 98/37/EG, the exhaust arms are designated as components.

Parts are designated as components if they are necessary for safe operation of the device and protection systems, but do not themselves serve an autonomous function.

2. Preventing mechanical hazards

All movable machine parts driven by electric motors, as well as all other dangerous machine parts, must be covered by fixed, securely fastened protective covers that can be removed only with tools.



Residual risk:

If a covering that can only be unfastened with a tool is removed, there is risk of injury if the machine is running.

3. Preventing electrical hazards

All electrical parts must be covered by fixed, securely fastened protective covers that can be removed only with tools. The device complies with Protection Class I according to EN 60 335-2.



Residual risk:

If a covering that can only be unfastened with a tool is removed, a hazard is posed by electric current.



4. Preventing dust hazards

When replacing the filter, it is possible to inhale dust. Following the instructions in the “Cleaning” section will minimize this hazard.

5. Intended use

The AIRBOX has been manufactured according to the state of the art and in compliance with safety regulations.

The AIRBOX is suitable for exhausting welding fumes where non-alloyed steels are welded at portable work locations. The purified air can be directed back into the work area. The devices are equipped with a filter for dust class “M” (moderate hazard) for separation of dust and smoke with an exposure limit $> 0.1 \text{ mg/m}^3$.



Aspiration of welding fumes is not permissible with welding of oil-moistened parts.

The device must not be used or stored outdoors or under wet conditions.

Other applications are considered unintended use. ESTA is not liable for damages due to unintended use!

ESTA sets up the welding fume filter according to the operator's information.



6. Technical data and description

6.1 AIRBOX

Filter type		Fibreglass mat / cassette filter
Connection voltage	[V]	230
Drive output	[kW]	1.25
Max. vacuum	[Pa]	2,000
Max. volume flow	[m³/h]	1,100
Intake port	[mm]	dia. 140
Dimensions (L x W x H)	[mm]	677 x 678 x 848
Environmental conditions	[°C]	$5 \leq \vartheta \leq 40$
Nominal frequency	[Hz]	50
Weight (incl. exhaust arm)	[kg]	115
Exhaust arm length	[m]	3
Exhaust arm (dia.)	[mm]	140
Size of hood	[mm]	300 x 300
Production year		See model plate.

6.2 Functional description

The AIRBOX is equipped with 1.25 kW motor that drives a radial fan. The device is turned on and off with using the green main switch.

The vacuum created by the fan draws air through the exhaust arm connected to the intake port.

The permanent filters in the filter housing separate the dust that is in the exhausted air.

The purified air is guided back into the room through the exhaust vents.

Diminishing suction performance signals that the filters have clogged. You can order new filters from ESTA's replacement part service.



ESTA replacement part service: +49 (0) 7307 804 - 831



7. Delivery, installation and start-up

7.1 Delivery and transport

The AIRBOX is delivered on a pallet, and the exhaust arm packed in a box. After the protective cover and the bottom fasteners have been removed, installation can begin.

The device must be transported only with its exhaust arm fully attached.



Upon delivery, please inspect the device for transportation damage. Damage determined must be reported and documented immediately.



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When moving the device, make sure the ground can support it and be driven over.

7.2 Installation

The only installation work necessary is installing the exhaust arm and connecting the current.

Install the exhaust arm to the AIRBOX in the following steps:



1. Lock the castors.



2. Place the exhaust arm into the opening and tighten the screws.



3. When transporting the AIRBOX, make sure that the exhaust arm is in a fully attached position. **Tilting hazard!**



7.3 Start-up



Only persons authorized under “General safety instructions” must turn the device on and off!

Before setting up the cable connection between the device and the power grid, check to make sure the operating voltage shown on the model plate is the same as that of the grid.



The device must be placed on a level surface as near as possible to the workplace. Lock the device's wheels.



Before the device is used, its operation must be tested:

- for damage to the device or its parts
- for mechanical damage to the power cable



Start the AIRBOX with the main switch on the front.

8. Maintenance and troubleshooting

8.1 Maintenance instructions

For maintenance by qualified personnel, the device must be opened, cleaned and inspected at the given locations, as well as possible, without any hazard being posed to maintenance personnel or other persons. Proper precautions must be taken before cleaning and removal of wearing parts. This includes locally filtered forced-air ventilation in the area in which the device is being maintained, and proper personal protective gear.

During maintenance or repair work, all soiled objects that can no longer be adequately cleaned must be disposed of. Such objects must be disposed of in an impermeable bag in compliance with applicable regulations for disposal of such refuse.



If the device is not needed in its location of use for a long time, it must be stored in a dry room. The temperature should not be below 5°C or above 25°C. Before the device is placed into storage, it is recommended that it be cleaned with a damp cloth.

The device must never be cleaned with flowing water.

8.2 Maintenance intervals

Daily maintenance includes:

➤ *By the dust extractor's user*

Visual inspection

- for damage to the device or its parts
- for mechanical damage to the power cable
- for filter leaks (dust trails or deposits on the air outlets)



Maintenance must be performed according to accident prevention regulations. The device must be disconnected from the power supply.

8.3 Troubleshooting

Use the following chart if a malfunction is evident. Call the ESTA maintenance service right away if there is a malfunction that is not discussed in these lists. Do not perform any repairs on the device yourself if they are not explicitly specified.

Problem	Possible cause	Possible solution
Suction too weak	Filter dirty	Filter replacement see point 9, Cleaning



If dust escapes or clouds up from the air outlets, if smoke develops or the fan runs loud, the device must be disconnected from the power immediately!



During maintenance, the device must generally be disconnected from the electrical grid.



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ESTA replacement part service: +49 (0) 7307 804 - 831



9. Cleaning / filter replacement

Cleaning work or filter changes must be performed in a well-ventilated room or outdoors. The people assigned to this work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective gloves. All distractions by uninvolved persons must be prevented.



During cleaning work or filter replacement, all soiled objects that can no longer be adequately cleaned must be disposed of. Such objects must be disposed of in an impermeable bag in compliance with applicable regulations for disposal of such refuse.



When the housing is open, the AIRBOX must not be turned on!

After an extended operation period, the filter pores can be clogged by extremely fine dust. The filter must be replaced with a new one.

If possible, filter replacement must be done when there is no work going on. Used filters and the accessories used must be discarded in compliance with local regulations in a closed, dustproof plastic bag.



Filter replacement



1. Lock the castors.

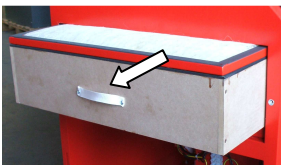


2. To replace the filter, loosen the two screws on the left side of the AIRBOX to remove the filter cover.

Attention: The filter cover can be removed completely.



3. Loosen the screw until the filter cassette and the fibreglass mat on top of it go down.



4. Now both filters can be removed with a light pull on the handle.

Then, depending on the degree of contamination, you can replace the fibreglass mat, or the filter cassette as well.



5. After inserting the new filters, tighten the screw under point 3 until the filter cassettes return to their initial position.

Now, once you screw the filter cover on, the AIRBOX is ready to run.



10. Disposing of the device

The people assigned to disposal work must be instructed on the aspirated toxic materials and wear a breathing protection mask with a class P3 particle filter, as well as protective clothing. All distractions by uninvolved persons must be prevented.



Before disposing of the device, remove the filters, and dispose of them in compliance with local regulations.

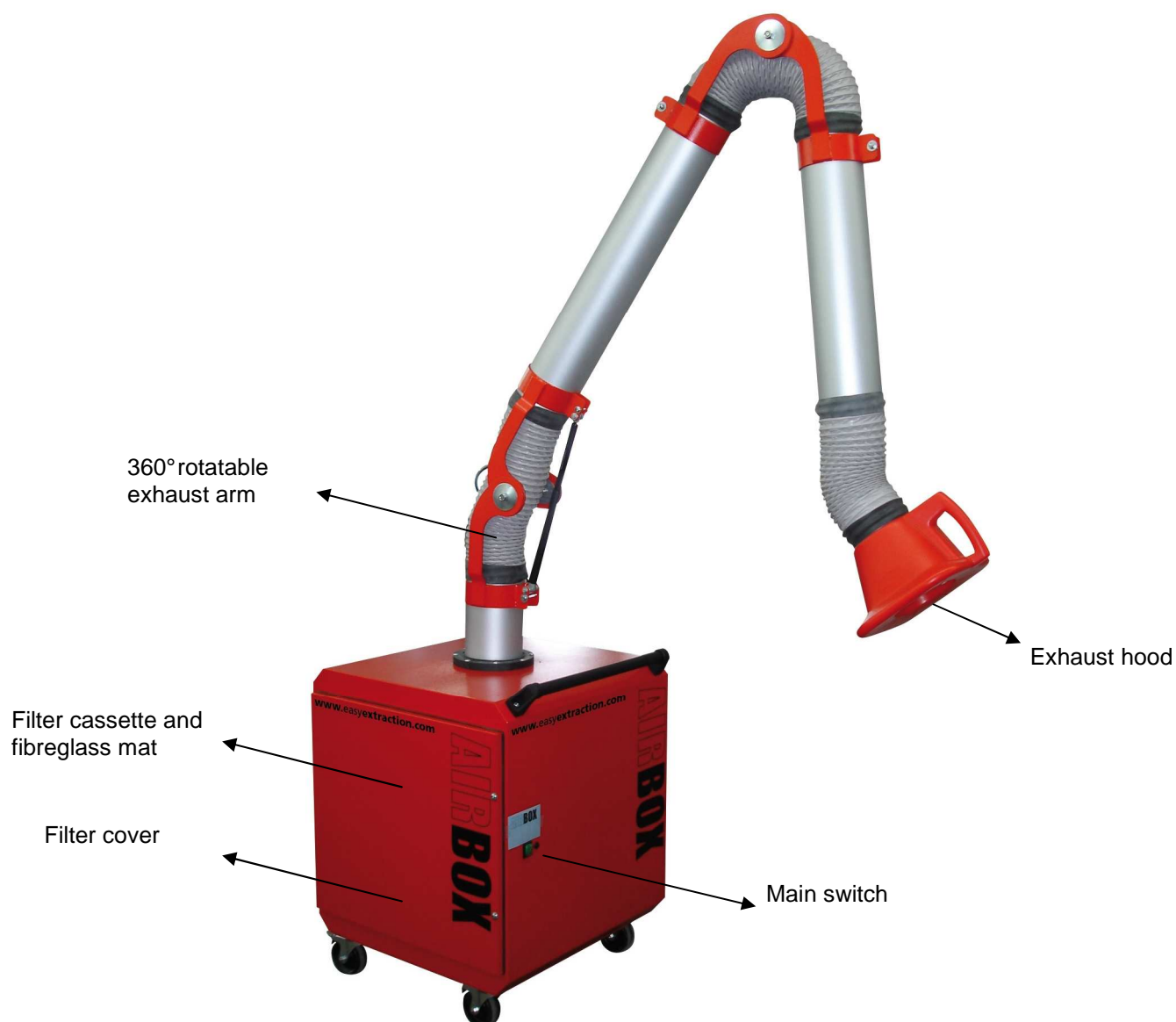
Pack the device in a suitable manner and dispose of it in compliance with local regulations.

Due to contamination of the device with toxic dust, ESTA cannot take the device back.



11. Device diagram

AIRBOX



With the model information, request the replacement parts you need from the ESTA replacement part service: +49 (0) 7307 804 - 831



12. Declaration of conformity

Name of manufacturer: ESTA Apparatebau GmbH & Co. KG
Address of manufacturer: Gotenstraße 2 - 6
89250 Senden

Here we explain that the design of the machine

Machine: Dust extractor for collection, transport and elimination of dry dusts and welding fumes.

Series: Welding fume filter
Model: Airbox

conforms to the following regulations:

2006/42/EG EC Machine Directive,
2004/108/EG EC Directive on Electromagnetic Compatibility

Reconciled norms used:

EN 12100 Safety of machinery - basic concepts, general propositions (part 1 and part 2)
EN 13857 Safety of machinery, devices and systems; safety distances to prevent hazard zones from being reached
EN 349 Safety of machinery; minimum distances for preventing body parts from being crushed
EN 60335 Safety of electrical appliances for household and similar use (part 1 and part 2-69)
EN 61000-6-3 Electromagnetic compatibility - Emitted interference in residential areas, commercial and business operations, as well as small enterprises
EN 61000-6-4 Electromagnetic compatibility - Emitted interference for the industrial sector
EN 61000-3 Part 11 Electromagnetic compatibility Limit values - Limiting voltage changes

National norms and technical specifications used:

VDI 3677 Filtering separators

Senden, 30 December 2009

Dr. Peter Kulitz
CEO



Notes

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Notes

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